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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,864	02/23/2004	Manfred Ueberschar	VOI0211.US	7576

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EXAMINER	
BAREFORD, KATHERINE A	

ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/783,864	UEBERSCHAR ET AL.	
	Examiner	Art Unit	
	Katherine A. Bareford	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-33,35,38-44 and 46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-33,35,38-44 and 46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 21, 2008 has been entered.

The amendment filed with the RCE submission of August 21, 2008 has been received and entered. With the entry of the amendment, claims 1-23, 34, 36, 37 and 45 are canceled, and claims 24-33, 35, 38-44 and new claim 46 are pending for examination.

Claim Rejections - 35 USC § 112

2. The rejection of claims 24-33, 35 and 38-44 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn due to applicant's amendments clarifying the language of claims 24 and 43 of August 21, 2008.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 24-33, 38, 39, 41-44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (US 4230743) in view of Finnicum et al (US 5206057).

Claims 24 and 46: Nakamura teaches a method of adding layers to a material web. Figure 4 and column 1, lines 10-15. The web can be paper. Column 13, lines 5-15. At least one first layer of a first application medium is applied to the web. Figure 4 and column 7, lines 1-15. At least one second layer of a second application medium is applied to the web. Figure 4 and column 7, lines 1-15. The application mediums are

liquid or pasty. Column 7, lines 60-65, and column 10, lines 30-40. The first application medium (the microcapsule containing medium) can have a solids content of 10-60 wt%. Column 7, lines 60-68. The second application medium (the color developer) can have a solids content of 10-60 wt%. Column 12, lines 30-40. The viscosity of the first medium can be 20 to 200 centipoise (=mPas). Column 7, lines 60-68. The viscosity of the second medium can be 10.8 or 19.5 centipoise (=mPas). Column 15, lines 60-65 and column 16, lines 55-60. The first and second application mediums can be applied to the web in the form of curtains. Figure 4 and column 7, lines 1-15. The apparatus for applying the layers can include a first curtain applicator unit with a first discharge nozzle, whereby the first medium is discharged as a first curtain onto a moving web base. Figure 4 and column 7, lines 1-15. A second curtain applicator unit with a second discharge nozzle is provided for providing the second medium as a second curtain onto a moving web base. Figure 4 and column 7, lines 1-15. The second applicator is positioned relative to the first applicator such that the first coating is still wet when the second coating is applied. Figure 4 and column 7, lines 1-15. The first application medium can be applied with the first curtain coater in an amount of 3.4 l/min (3400 ml/min) for a slit length of 800 mm (0.8 m) at a speed of 300 m/min. Column 17, lines 35-45 (sample 9). This provides an application amount of 3400/(.8 x 300) = 14 ml/m^2 (within the claimed range). The second application medium can be applied with the second curtain coater in an amount of 4.7 l/min (4700 ml/min) for a slit length of 800 mm (0.8 m) at a speed of

300 m/min. Column 17, lines 35-45 (sample 9). This provides an amount of 4700/(.8 x 300) = 19.58 ml/m^2 (within the claimed range).

Claim 25: the water retention capability of the second application medium can be higher than that of the first application medium, as the amount applied of each material can be roughly the same and the second medium can contain an absorptive material, such as clay, not found in the first medium. Column 10, lines 25-40 and column 13, lines 30-40.

Claim 26: the density of the first application medium can be significantly greater than the density of the second application medium, given that in Example 2, for example, the first medium has a significantly higher solids content than the second medium, indicating its greater weight. Column 15, lines 35-65.

Claim 27: the viscosity of the first medium can be higher than that of the second medium, given that the viscosity of the first medium is taught to be 20 to 100 centipoise, while the viscosity of the second medium can be as low as 10.8 centipoise. Column 7, lines 60-68 and column 15, lines 55-65.

Claim 28: the first medium, for example, can be an aqueous solution or dispersion of solid particles. Column 7, lines 60-65 and column 10, lines 1-10 (the solid particles). The second medium can also contain solid particles, such as clay as an aqueous solution or dispersion. Column 12, lines 30-40 and column 10, lines 25-35.

Claim 29: the first medium can be a butadiene-styrene dispersion. Column 9, lines 50-55. The second medium can be a butadiene-styrene dispersion. Column 12, lines 40-45 and column 15, lines 55-65.

Claim 30: the solid particles can be mineral pigments or plastic particles. Column 10, lines 5-20.

Claim 31: the solid particles can be plastic, microcapsules or starch. Column 10, lines 5-20.

Claim 32: the first medium can have solids content of 10-60 wt%. The viscosity can be 20 to 100 mPas. The first medium can be a barrier layer, to the extent that the surface is covered and a protective mateiral is also present. Column 10, lines 1-10.

Claim 33: the first application medium can be a starch solution. Column 10, lines 5-10 (note the presence of starch).

Claim 38: the curtain applicators apply the mediums, respectively, onto the moving web base in a substantially finally metered manner. Figure 4 and column 7, lines 1-25.

Claim 41: the curtain heights of the first and second curtains can be about 10 to 20 cm (100 to 200 mm). Column 13, lines 40-45.

Claim 42: the first curtain applicator can discharge the first medium at 3.4 l/min for a width of 800 mm (0.8 m). Column 17, lines 35-45 (sample 9). This gives 3.4/0.8 = 4.25 l/min per meter of width. The second curtain applicator can discharge the first

medium at 4.7 l/min for a width of 800 mm (0.8 m). Column 17, lines 35-45 (sample 9). This gives 4.7/0.8 = 5.875 l/min per meter of width.

Claim 43: the web base speed can be 1000 m/min. Column 5, lines 35-40. For example, the speed can be 300 m/min. Column 17, lines 35-45. The web base can be paper, such as art paper. Column 13, lines 5-15.

Claim 44: the coating amount can be greater than 4 g/m^2 for each layer. Column 13, lines 30-40. The web base can be paper, such as art paper. Column 13, lines 5-15.

Nakamura teaches all the features of these claims except (1) that the viscosity is measured as a Brookfield viscosity determined at 100 rev/min (claim 24), (2) the density (claim 32), (3) the distance between the first and second applicators (claim 24), (4) the exact amount of material (claim 44), (5) the pressure differential in a space partially bounded by the first and second curtains with negative pressure (claim 24) or positive pressure (claim 46) in the space, (6) the vacuum/positive pressure device positioned between the two applicators (claim 39), and (7) the enclosure of the space using the various elements as now required by claim 24.

However, Finnicum teaches that when curtain coating, it is well known to position a pressure differential device that can provide a vacuum or positive pressure in a space partially bounded by the curtain. Figures 1, 3 and 7 and column 3, line 40 through column 4, line 40 and column 5, lines 1-40. The pressure differential space can be such that the space is provided before the curtain in the direction of movement of the web, with the front wall being the curtain. Figures 1 and 3 and column 3, line 40

through column 4, line 40. As well as the space can be provided behind the curtain in the direction of movement of the web, with the back wall of the space being the curtain. Figure 7 and column 5, lines 1-40. The system provides for moving the line of impingement on the curtain on the substrate without disturbing the uniform flow of the curtain. Column 2, lines 65-68. As a result of this system the optimal shape of the curtain can be provided. Column 4, lines 10-20.

It is the Examiner's position that it is well known to measure viscosity using a Brookfield system determined at 100 rev/min. As applicant has not traversed this position from the Oct. 3, 2005 Office Action, it is understood to be admitted prior art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura to provide that the viscosity is within the claimed range when measured using the Brookfield system determined at 100 rev/min, because Nakamura teaches a range of 20-100 centipoise viscosity without telling precisely how it is measured, and it is the Examiner's position that the use of a Brookfield system to measure the viscosity is a well known way of measuring viscosity , and its use would provide the desired viscosity of Nakamura when performing the process of Nakamura. It would further have been obvious to provide a density within the claimed range when performing the process of Nakamura, as Nakamura teaches to use an aqueous base and gives a range percentage of solids of defined additive materials, which would provide densities in the claimed range. It would further have been obvious to modify Nakamura to perform routine experimentation to optimize the

distance between the first and second applicators, because Nakamura teaches to apply the second coating while the first coating is still wet, and therefore, the second applicator must be close enough to the first applicator for this to occur, based on the materials used and the speed of the coating, and one of ordinary skill in the art would optimize to determine the best distance. It would further have been obvious to modify Nakamura to perform routine experimentation to optimize the exact amount of material to be applied based on the materials to be used, because Nakamura teaches to apply more than 4 g/m^2 of material for each layer, and one would optimize from the wide range provided. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Nakamura to provide a pressure differential device providing positive pressure or vacuum in a space partially bounded by the first and second curtains of the two applicators as suggested by Finnicum with an expectation of desirable coating results by shielding the curtain and providing proper positioning of the curtain, because Nakamura teaches curtain coating with two devices in series, and Finnicum teaches the desirability of placing a pressure differential system providing positive pressure or vacuum directed before and after the curtain of a curtain coating device in the direction of movement of the web and partially bounded by the curtain. Because of the two curtains of the system of Nakamura, pressure differential systems as described by Finnicum would be provided on both sides of the two curtains, which would suggest providing a single pressure differential system between the two curtains that is bounded by both of the curtains for efficient use of the

space between the curtains. This pressure differential system would provide a pressure differential in a space between the first and second curtains relative to an ambient atmospheric pressure, which could be either positive or negative (vacuum) pressure as described by Finnicum. As a result of using this suggested single pressured differential system between the two curtains, the space between the two curtains would be enclosed by using the application medium curtains coming from said first curtain applicator unit and said second curtain applicator unit (providing the front and back sides of the enclosure) (see figure 4 of Nakamura, for example), the paper web (providing the bottom of the enclosure) (figure 4 of Nakamura, figure 7 of Finnicum, the curtains fall on a moving web that passes from curtain to curtain), and the use of the first and second applicator units (providing parts of the top of the enclosure) (figure 4 of Nakamura, note the applicator heads extending towards each other, and figure 7 of Finnicum, note the applicator head forming the top part of the enclosure), along with the "pressure differential system" also providing part of the enclosure as it is attached (see Finnicum, figure 7, for example). This pressure differential system would be in the form of a "suction/blower box" as claimed, because as noted by Finnicum the pressure differential system provides vacuum (suction) or air (blowing) into the enclosure (column 3, lines 64-68 and figure 7). The space would have to be "enclosed" or "sealed" to the extent claimed so as to maintain the desired pressure differential as shown by Finnicum. As the pressure would be provided as either a positive or negative pressure, through the routine experimentation to optimize the pressure in the enclosed zone to

provide the optimum stable, uniform curtains (column 4, lines 10-20 of Finnicum), and therefore, the suggestion to provide both positive and negative pressures would be provided based on the specific curtain being applied. As to the enhancing of the wetting from the negative pressure (claim 24) or stabilizing the curtain from the positive pressure (claim 46), the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

6. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Finnicum as applied to claims 24-33, 38, 39, 41-44 and 46 above, and further in view of Shay (US 5192592).

Nakamura in view of Finnicum teaches all the features of this claim except the ink filled microcapsules. Nakamura teaches that microcapsules can be provided in the first coating as part of the protective agent, where the microcapsules are filled with other than color developer. Column 10, lines 1-10. The microcapsules can be 3-50 microns is size. Column 10, lines 10-20. The solids content of the first coating can be 10-60 wt%. Column 7, lines 60-68. The viscosity of the first coating can be 10-200 centipoise (=mPas). Column 7, lines 60-68.

However, Shay teaches that it is known to provide aqueous coatings of styrene-butadiene latex, clay, starch, calcium carbonate and ink capsules. Column 6, lines 45-50.

the solids content of this coating can be about 50 wt%. Column 6, lines 55-60. Shay teaches that the taught coatings can be commonly applied by blade, roll and curtain coating processes. Column 5, lines 50-60.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura in view of Finnicum to use ink filled microcapsules as suggested by Shay with an expectation of desirable coating results, because Nakamura in view of Finnicum teaches that microcapsules filled with other than developer can also be used in the first coating and Shay teaches that it is well known that capsules of ink can be curtain coated.

7. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Finnicum as applied to claims 24-33, 38, 39, 41-44 and 46 above, and further in view of Saito et al (US 5136970).

Nakamura in view of Finnicum teaches all the features of this claim except the guide elements.

However, Saito teaches that when curtain coating, it is desirable to provide guide elements that guide curtain flow from the slot of the curtain coating nozzle. Figures 1-3 and column 3, lines 5-25.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura in view of Finnicum to a curtain guide member as suggested by Saito with an expectation of desirable coating results, because

Nakamura in view of Finnicum teaches a method of curtain coating in series and Saito teaches that it is desirable to use a guide member when curtain coating.

Response to Arguments

8. Applicant's arguments filed August 21, 2008 have been fully considered but they are not persuasive.

As to the 35 USC 103 rejection, the Examiner has reviewed applicant's arguments at pages 11-13 of the August 21, 2008 amendment, however, the rejection is maintained. Applicant argues that the references do not provide the enclosing of the space as now required by claims 24 and 46 and the enhancing of the wetting from providing a negative pressure of claim 24 (and presumably the stabilizing from the positive pressure of claim 46, although this was not discussed by applicant). The Examiner disagrees. While neither reference specifically provides for the enclosing as claimed, it is the combination of the references that provides the suggested single pressure differential system that has the same bounding elements (curtain mediums, applicator units, paper web, and suction/blower box). As discussed in the rejection above, the combination of Nakamura and Finnicum would provide this enclosure when providing the suggested single pressure differential system in the space partially bounded by the first and second curtain as claimed. As a result of using this suggested single pressured differential system between the two curtains, the space between the two curtains would be enclosed by using the application medium curtains coming from said first curtain

applicator unit and said second curtain applicator unit (providing the front and back sides of the enclosure) (see figure 4 of Nakamura, for example), the paper web (providing the bottom of the enclosure) (figure 4 of Nakamura, figure 7 of Finnicum, the curtains fall on a moving web that passes from curtain to curtain), and the use of the first and second applicator units (providing parts of the top of the enclosure) (figure 4 of Nakamura, note the applicator heads extending towards each other, and figure 7 of Finnicum, note the applicator head forming the top part of the enclosure), along with the "pressure differential system" also providing part of the enclosure as it is attached (see Finnicum, figure 7, for example). This pressure differential system would be in the form of a "suction/blower box" as claimed, because as noted by Finnicum the pressure differential system provides vacuum (suction) or air (blowing) into the enclosure (column 3, lines 64-68 and figure 7). The overall space would have to be "enclosed" or "sealed" to the extent claimed, at least using the elements above as part of the enclosure structure, so as to maintain the desired pressure differential as shown by Finnicum. As to the enhancing of wetting or curtain stability by using negative (vacuum) or positive pressure, respectively, this would follow from providing the suggested pressure differential system and optimizing the specific pressure differential provided, for the particular curtain system used, as Finnicum suggests to optimize the pressures used in the enclosed area bounded by the curtain to provide optimum stable, uniform curtains (column 4, lines 10-20 of Finnicum). As to the enhancing of the wetting from the negative pressure (claim 24) or stabilizing the curtain from the positive pressure (claim

46), the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985), as the enhancing wetting or stabilizing as claimed simply follows from providing the negative or positive pressures. In fact, Finnicum even notes the desire for a stable curtain.

As to dependent claims 35 and 40, the rejection of these claims is maintained as the rejection of claim 24 is maintained above, and no further arguments have been provided as to the dependent claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/
Primary Examiner, Art Unit 1792